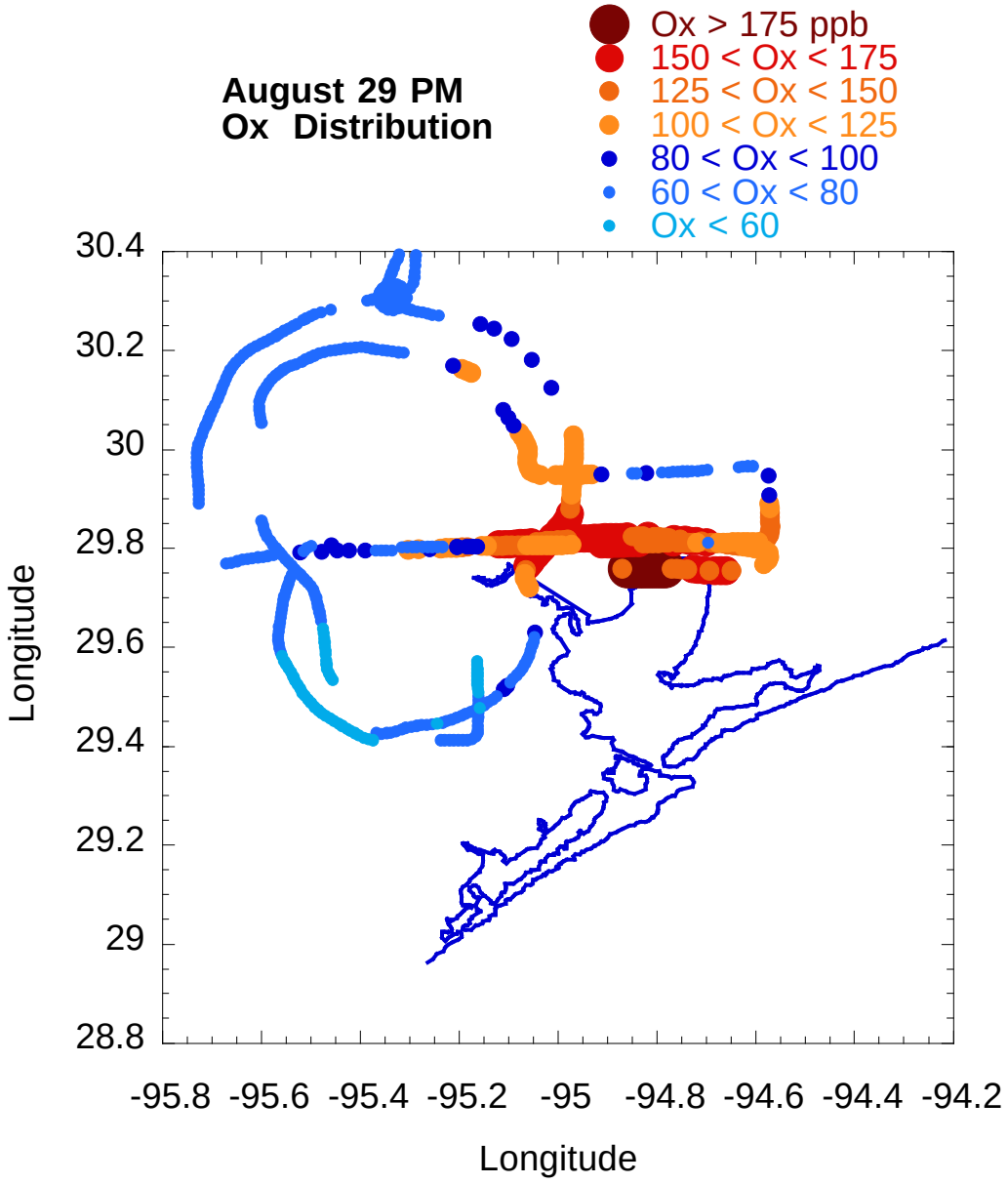
Ozone Spikes

Are they apparent in the G-1 data?

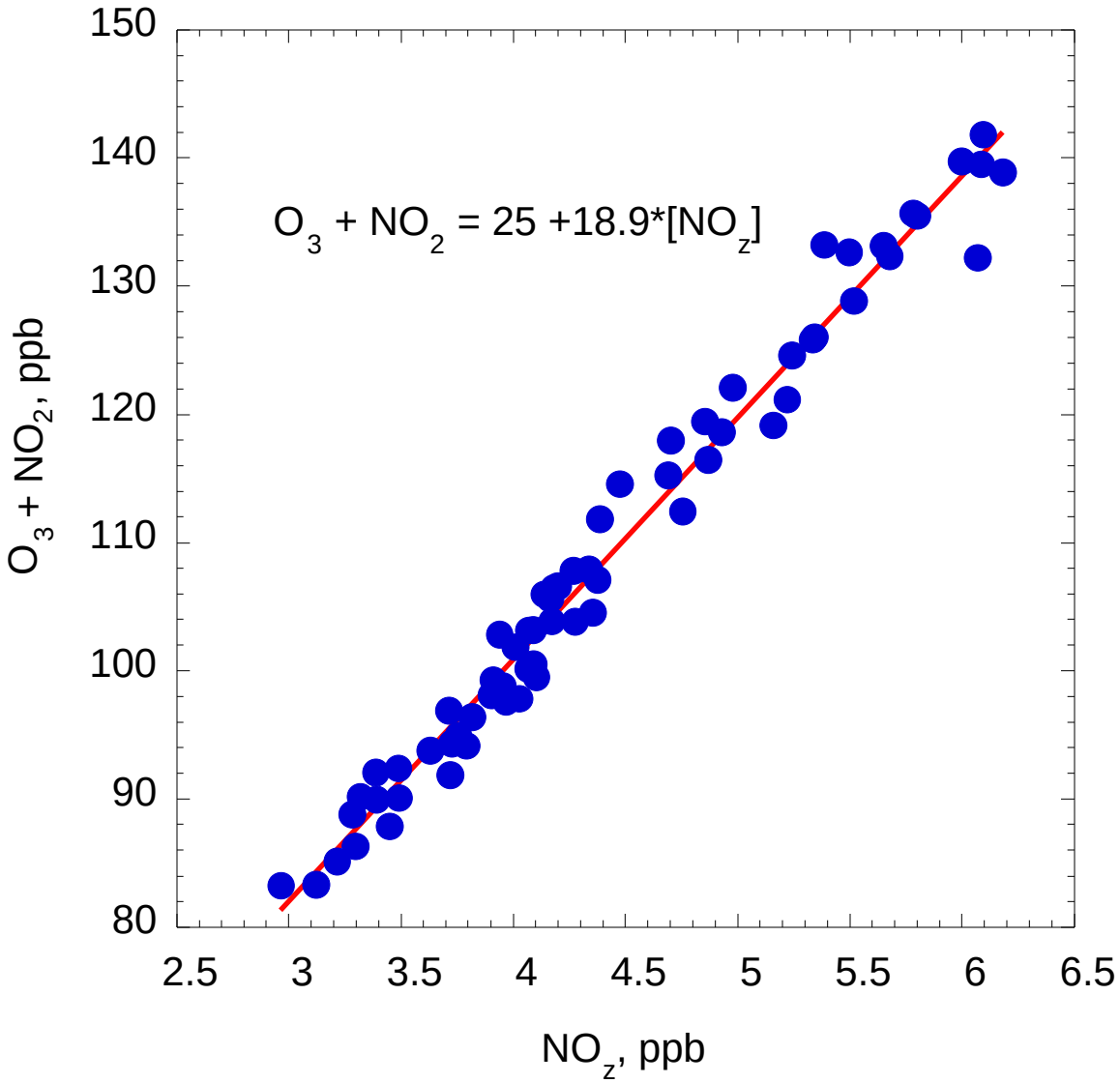
Yes- Multiple days 8/19, 8/21, 8/26, 8/29, 8/31, 9/6, 9/12



Ozone Spikes

What are their characteristics?

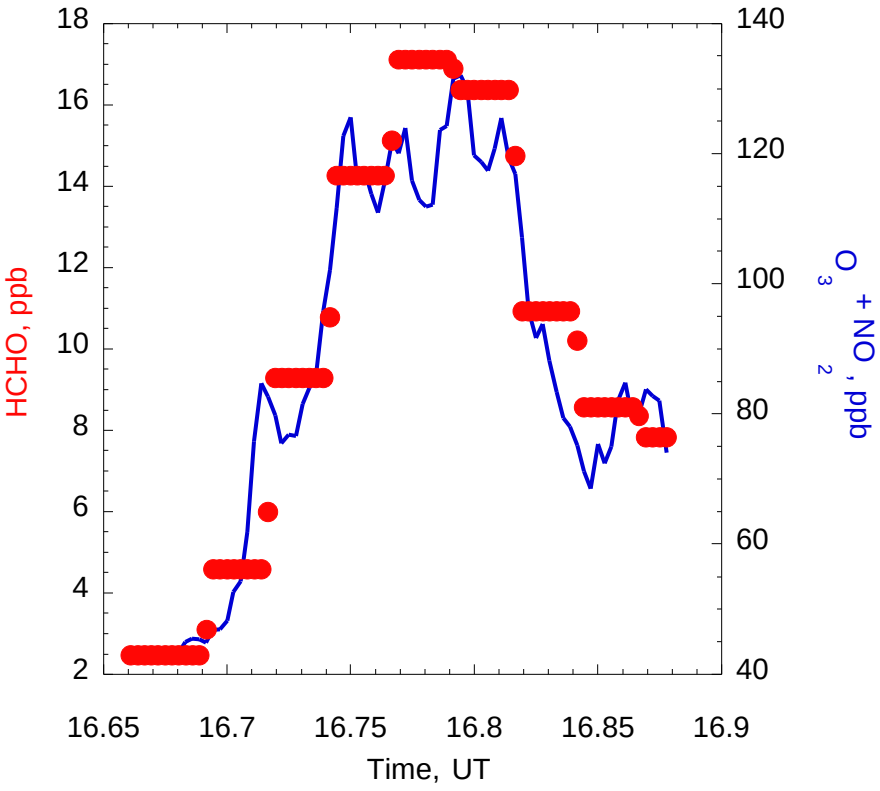
a. High O_3 production efficiencies, e.g, afternoon flight of 8/19



Ozone Spikes

b. Associated with high concentrations of secondary organic species such as HCHO.

For example-



HCHO is a product of HC oxidation. Suggests that O_3 spike associated with high initial HC concentrations, perhaps high concentrations of alkenes.

How can we understand source of these localized regions of high O_3 concentration?

- Examine regions where high O_3 concentrations observed and do some archeology.

  Analyze hydrocarbon reactivity

  Look at product distributions (e.g., HCHO, Peroxides, PANs, etc.)

  Do trajectory analysis to find out where these regions came from.

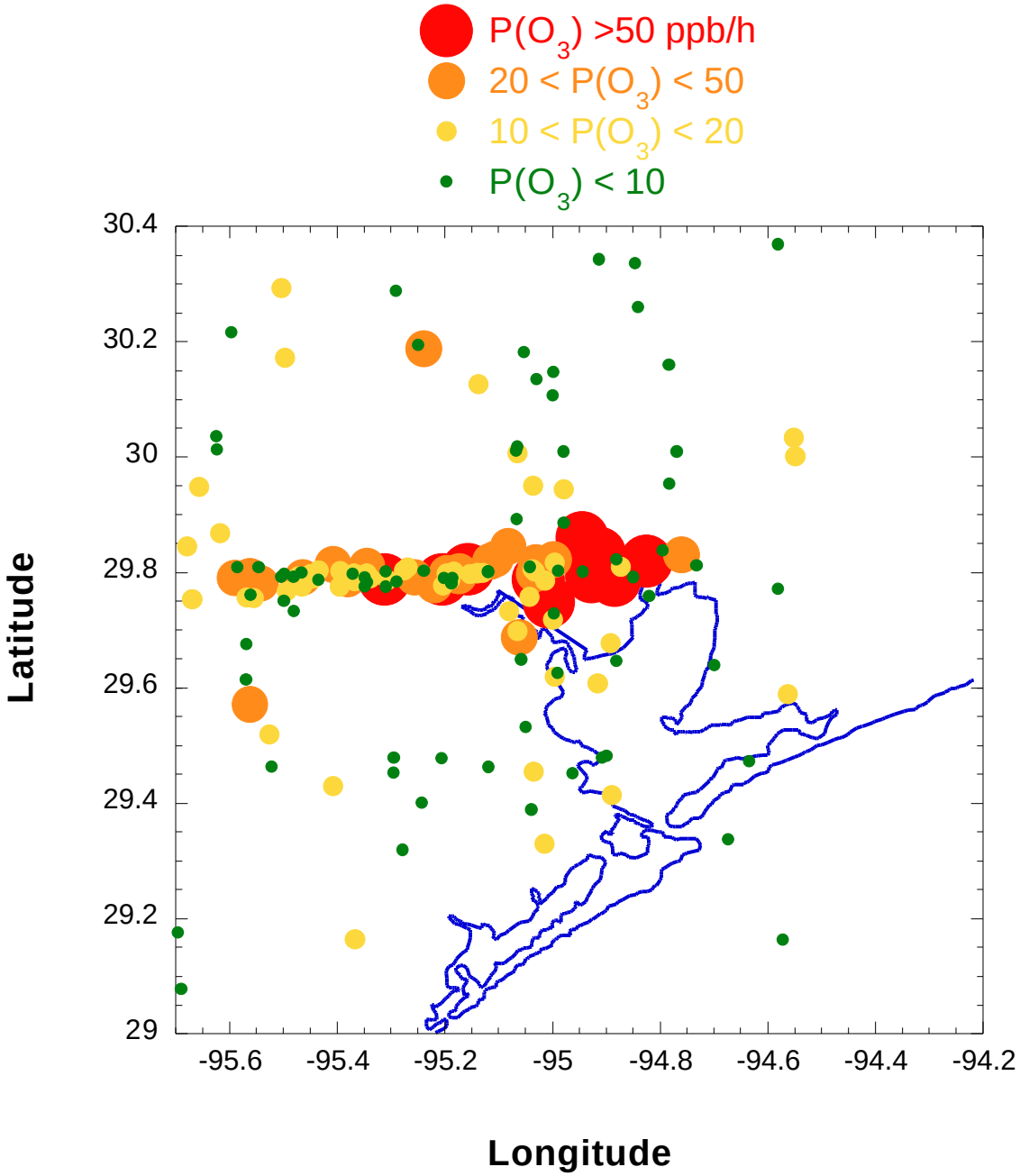
- Examine $P(O_3)$- (constrained box model calculations)

  Identify conditions and locations where $P(O_3)$ high.

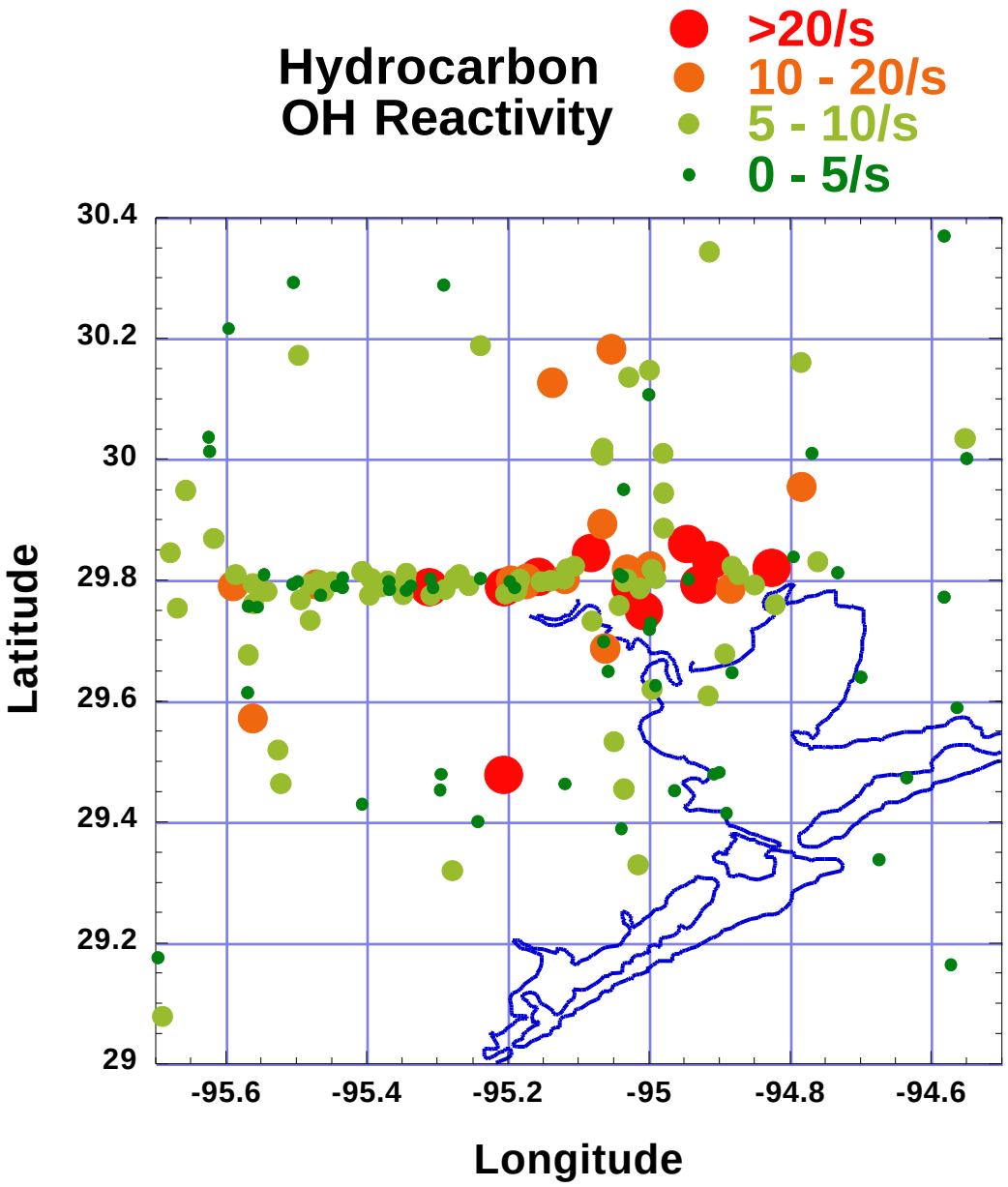
  Identify compounds responsible for hydrocarbon reactivity.

  Connect regions where $P(O_3)$ high to regions where high O_3 concentrations observed.

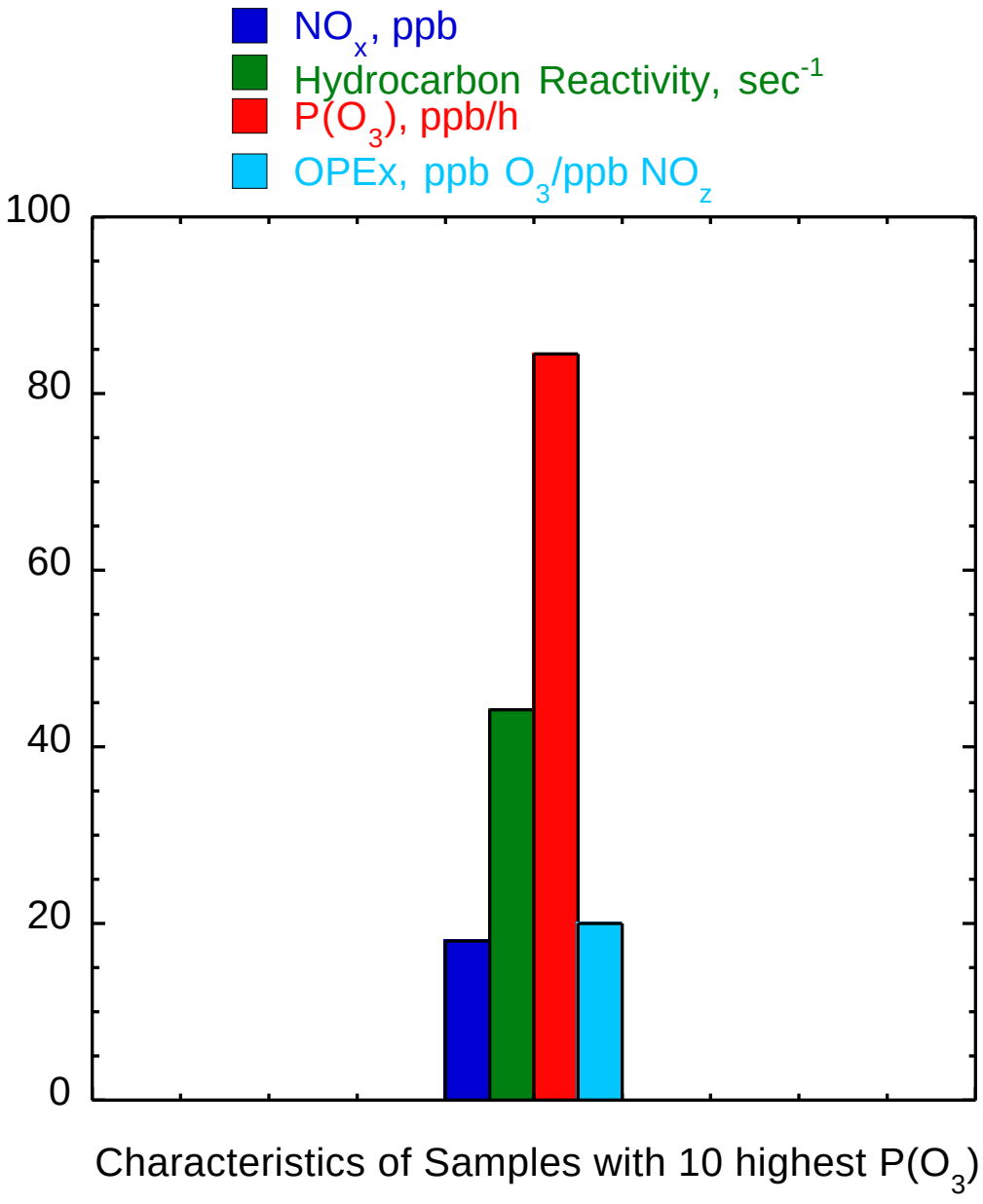
Geographic Distribution of $P(O_3)$



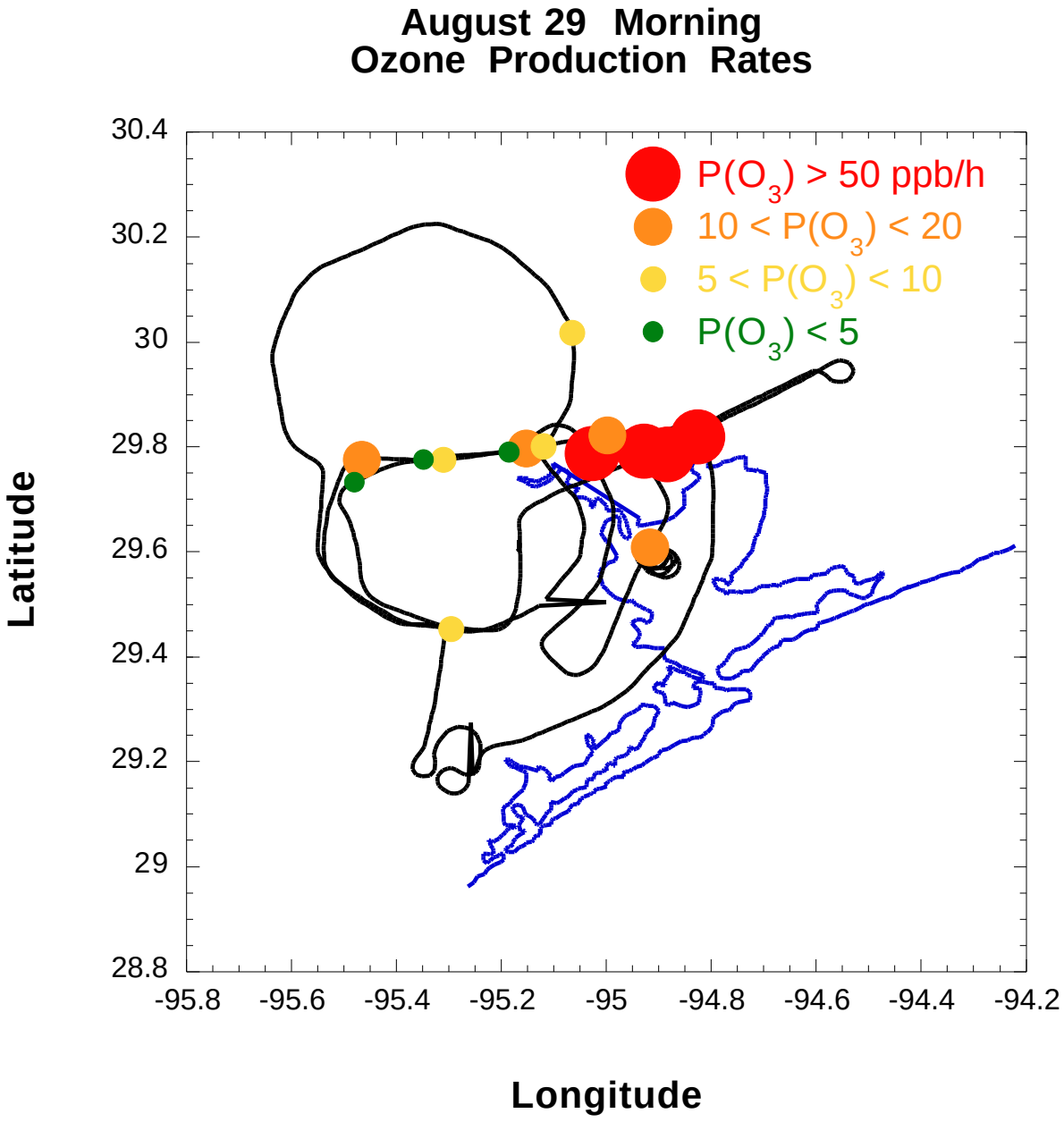
Geographic Distribution of Hydrocarbon Reactivity



Characteristics of O_3 production when $P(O_3)$ high



Connect regions of high $P(O_3)$ to regions where O_3 high



Connect regions of high $P(O_3)$ to regions where O_3 high